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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
RASHID, DAVID	
ART UNIT	PAPER NUMBER
2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/802,570	DAMERA-VENKATA, NIRANJAN	
	Examiner	Art Unit	
	David P. Rashid	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-23 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 17 March 2004 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 3/17/2004, 9/27/2005.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

All of the examiner's suggestions presented herein below have been assumed for examination purposes, unless otherwise noted.

Drawings

1. The following is a quote from 37 C.F.R. 1.84(u)(1):

> (1) The different views must be numbered in consecutive Arabic numerals, starting with 1, independent of the numbering of the sheets and, if possible, in the order in which they appear on the drawing sheet(s). Partial views intended to form one complete view, on one or several sheets, must be identified by the same number followed by a capital letter. View numbers must be preceded by the abbreviation "FIG." Where only a single view is used in an application to illustrate the claimed invention, it must not be numbered and the abbreviation "FIG." must not appear.

FIG. 1 is rejected under 37 C.F.R. 1.84(u)(1) since FIG. 1 discloses two separate views of the invention – suggest breaking up and numbering separately as FIG. 1A and 1B (all changes must also be supported in the specification).

2. The following is a quote from 37 C.F.R. 1.84(q):

> *Arrows.* Arrows may be used at the ends of lines, provided that their meaning is clear, as follows:
> (1) On a lead line, a freestanding arrow to indicate the entire section towards which it points;
> (2) On a lead line, an arrow touching a line to indicate the surface shown by the line looking along the direction of the arrow; or
> (3) To show the direction of movement.

FIG. 1 through FIG. 5 are rejected under 37 C.F.R. 1.84(q) for failing to complete specific lead lines – suggest converting the following reference numerals into arrow lines: "100", "120", "204", "206", "310", "320", "330", "400", "410", "420", "422", "424", "426", and "500".

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "204", "206", "402a", "402b", "402c", and "402d".

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities: page 12, line 25 refers to the wrong example – suggest changing to "...example 310, showing a single isolated sub-pixel.".

Appropriate correction is required.

Claim Objections

6. 37 CFR 1.75(a) reads as follows:

> The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

7. **Claims 3, 4, 14, 15** and **16** are objected to because of the following informalities:

(i) Claims 3 and 4 both recite "neighboring pixels" wherein claim 2 from which they depend recite "...one or more pixels neighboring...", Do claim 3 and 4 also further limit claim 2 by only including more than one neighboring pixels? If there is only one neighboring pixel in question as within the scope of claim 2, then claims 3 and 4 cannot read unto claim 2 – suggest changing "neighboring pixels" to "one or more neighboring pixels".

(ii) Claim 14, line 1 states "...wherein the step of selecting one or such allowable exposure...", however it is unclear as to what is being stated – suggest changing to "...wherein the step of selecting an allowable exposure".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. **Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20, 21** and **22** are rejected under 35 U.S.C. 102(b) as being anticipated by Higuchi et al. (US 5708514 A).

Regarding **claim 1**, Higuchi discloses a method of generating a halftone image ("It is an object of the present invention to provide an image recording apparatus capable of stably recording a good tone image for a general image recording apparatus which records an image in a multi-level manner.", column 3, line 58. More specifically, the examiner is concerned with the fourth embodiment of the invention - FIG. 34 through FIG. 40 and column 24 through column 27.) comprised of a plurality of pixels ("For example, the recording control signals (exposure pulses) of pixels around the current pixel have the distributions shown in FIGS. 35A and 35B, light distributions on the photoreceptor drum 24 shown in FIGS. 36A and 36B are obtained.", column 24, line 50), each pixel further comprised of two or more sub-pixels (The fourth embodiment of the invention defines the sub-pixels as "pulse width" in direct correlation to exposure time, "...recording width information=pulse width...", column 25, line 54. The number of total sub-pixels can then be considered dependent on the resolution of the pulse width.), the method comprising:

a. Generating a lookup table providing allowable sub-pixel exposure configurations (TABLE 1, column 26 in combination with FIG. 39 has been "generated" at some point in time.);

b. Processing the pixels in a sequential order using an error diffusion technique ("When the error signal is input to an error diffusion section 8, error diffusion is performed for an image signal from the image input section 1.", column 24, line 37 (FIG. 34) in addition to "Referring to FIGS. 39A to 39P, as in FIG. 37, a lateral direction indicates a main scanning direction, and a vertical direction indicates a sub-scanning direction, each lower right pixel indicates the current pixel X having a recording control signal to be determined, and the upper and left pixels of each current pixel X respectively indicate the adjacent pixels A and B to be referred to.", column 25, line 57.); and

c. Selecting from the lookup table an allowable sub-pixel exposure configuration for each pixel as it is processed (TABLE 1, column 26 in combination with FIG. 39 that has been applied.).

Regarding **claim 2**, Higuchi discloses the method of claim 1 whereby the lookup table providing allowable exposure configurations is indexed based on at least one exposure characteristic of one or more pixels neighboring the pixel currently being processed (TABLE 1, column 26 contains Pixel B and Pixel A columns, wherein pixel A and B are neighboring pixels as shown in FIG. 39A).

Regarding **claim 3**, Higuchi discloses the method of claim 2 wherein the one or more neighboring pixels, used in selecting from the lookup table, have already been processed (FIG. 37 discloses the main scanning direction wherein the shaded area has already been processed before reaching the current pixel. "Referring to FIGS. 39A to 39P, as in FIG. 37, a lateral direction indicates a main scanning direction, and a vertical direction indicates a sub-scanning direction, each lower right pixel indicates the current pixel X having a recording control signal to be determined, and the upper and left pixels of each current pixel X respectively indicate the adjacent pixels A and B to be referred to.", column 25, line 57.).

Regarding **claim 4**, Higuchi discloses the method of claim 3, wherein the one or more neighboring pixels are adjacent to the pixel currently being processed (refer to reference cited in claim 3).

Regarding **claim 5**, Higuchi discloses the method of claim 1, whereby the allowable exposure configurations provided by the lookup table each comprises a justification value and an exposure level (TABLE 1, column 26 contains two sub-columns for each adjacent neighboring pixel from the target pixel wherein the pulse width may be considered exposure level, and the pulse position may be considered the justification value. Refer to FIG. 39 for all possible visual orientations that reflect TABLE 1.).

Regarding **claim 6**, Higuchi discloses the method of claim 5 wherein the justification values and exposure levels are provided by the lookup table are consequent to sub-pixel

capabilities of an output device for which the halftone image is generated (It is another object of the present invention to provide an image recording apparatus capable of recording a good tone image having high resolution and a low noise level and being free from a change in density and a coarse portion in a low-density area while using a recording system which is not suitable for multi-level recording." , column 3, line 62.).

Regarding **claim 7**, Higuchi discloses the method of claim 5 whereby the justification value of an allowable exposure configuration is either left of right (TABLE 1, column 26 shows the pulse position (justification value) as either "front" (left) or "rear" (right). One ordinary skilled in the art understands that "right" or "left" is another way of broadly stating a bi-directional configuration of the allowable exposure justification value, whether "right" or "left" be "top" or "bottom", "front" or "rear", "forward" or "backward", etc.)

Regarding **claim 8**, Higuchi discloses the method of claim 5 wherein the step of selecting further comprises setting the justification and applying a tone associated with the exposure level of the selected allowable exposure configuration ("For example, the recording control signals (exposure pulses) of pixels around the current pixel have the distributions shown in FIGS. 35A and 35B, light distributions on the photoreceptor drum 24 shown in FIGS. 36A and 36B are obtained. When a potential distribution and a toner amount distribution are calculated by the distributions shown in FIGS. 36A and 36B, the recording density can be estimated. Since the relationship between an exposure and an amount of toner to be developed has nonlinear characteristics as shown in FIG. 6. For this reason, even if the same exposure pulse width having

a duty ratio of 50% is used as in FIGS. 35A and 35B, when exposure pulse start times are different from each other, different recording densities may be obtained.", column 24, line 50 in combination with "This embodiment is characterized in that the image dots of a recording image are controlled in size. The image dot means connected areas which toner adheres on the photoreceptor drum 24. As described above, when an exposure pulse width is small, an area having an intermediate potential increases on the photoreceptor drum 24, density stability is degraded, or coarse noise increases.", column 24, line 64.).

Regarding **claim 9**, Higuchi discloses the method of claim 8 whereby the exposure level setting for at least one of the allowable exposure configurations corresponds to no tone being applied (According the references cited in claim 8, the toner and exposure level reflects the values from those calculated in TABLE 1, column 26. TABLE 1, column 26 does disclose the possibility that the current pixel after the algorithm can still contain no image dot. In this case, pixel A and B would have no image dot, and the current pixel value T = 0. After the algorithm, the current pixel value would still be 0, and no image dot would result.).

Regarding **claim 10**, Higuchi discloses the method of claim 1 wherein, for the pixel currently being processed, the step of selecting from the lookup table is based on

(i) an exposure characteristic of one or more neighboring pixels (TABLE 1, column 26 wherein the exposure characteristic is pulse width of both adjacent and neighboring pixels A and B) and

(ii) a modified input value for the pixel currently being processed ("FIG. 34 is a block diagram showing the arrangement of an image recording apparatus according to the fourth embodiment.", column 24, line 12. FIG. 34 discloses an error diffusion section wherein a weight is redirected back into the image input section to "modify" the pixel to be processed.)

Regarding **claim 11**, Higuchi discloses the method of claim 10 wherein the step of selecting an allowable exposure configuration further comprises comparing the modified input value for the current pixel with allowable exposure configurations provided by the lookup table (More detail is given in the first embodiment of the invention for a similar setup to that of the fourth embodiment's FIG. 34: "Referring to FIG. 2, an image input section 1 (e.g., a scanner or an image memory) outputs an image signal of an half-tone image, i.e., outputs an image signal where each pixel has a multi-level pixel density value. This image signal is input to an adder 2. The adder 2 adds a correction density value to each pixel density value to output corrected pixel density values.", column 8, line 66 as well as "The error diffusion section 8 includes an error buffer 8a for temporarily storing the error signal and a weighting section 8b for multiplying the error signal read from the error buffer 8a by a predetermined weighting coefficient. The error diffusion section 8 supplies a result obtained by multiplying the error signal by the weighting coefficient to the adder 2 to perform error diffusion for an image signal from the image input section 1.", column 13, line 29.

With the above references, it is inherent that the values of the current pixel T of the fourth embodiment have incorporated weights due to the error diffusion section.).

Regarding **claim 12**, Higuchi discloses a method of generating a halftone image for an output device ("It is an object of the present invention to provide an image recording apparatus capable of stably recording a good tone image for a general image recording apparatus which records an image in a multi-level manner.", column 3, line 58. More specifically, the examiner is concerned with the fourth embodiment of the invention - FIG. 34 through FIG. 40 and column 24 through column 27.) using error diffusion to process a plurality of pixels in a sequential order (refer to references cited in claim 1), said output device having sub-pixel addressability (TABLE 1, column 26), the method comprising:

a. Creating a lookup table indicating one or more allowable exposure configurations for a currently processed pixel based on exposure characteristics of one or more pixels neighboring said current pixel (refer to references cited in claim 1);

b. Accessing the lookup table for the current pixel ("As shown in Table 1, the recording control signal of the current pixel X is determined by the recording control signals of pixels A and B adjacent to the current pixel X. Table 1 shows the recording control signal of the current pixel X for 16 combinations of the recording control signals (recording width information=pulse width and recording position information=pulse position) of the adjacent pixels A and B. The 16 recording patterns corresponding to the Table 1 are shown in FIGS. 39A to 39P.", column 25, line 49.);

c. Identifying the allowable exposure configurations for the current pixel (TABLE 1, column 26 depicts a third column wherein the current pixel is evaluated, including the identification of the allowable exposure configurations under the pulse width Tx sub-column);

d. Selecting an allowable exposure configurations for the current pixel (The allowable selection exposure configuration for the current pixel is given in TABLE 1, column 26 under the pulse width Tx sub-column.); and

e. Applying the selected allowable exposure to the current pixel ("The hatched portions in the adjacent pixels A and B indicate the recording width information and recording position information of the recording control signal of the current pixel X.", column 25, line 64.).

It must be noted that the following example for the fourth embodiment disclosed by Higuchi carries out all sub-section (a) through (e) of claim 10: " FIG. 40B shows a case wherein the pixel B adjacent to the current pixel X on the left side has an image dot and the pixel A adjacent to the current pixel X on the upper side has no image dot, and the provisional value of the pulse width of the current pixel X is 0.5. In this case, according to condition 5, the recording control signal of the current pixel X has an upper exposure pulse position and an exposure pulse width of 0.5. Therefore, the image dot of the current pixel X is connected to the image dot of the adjacent pixel on the left side, and the image dot is prevented from being isolated.", column 27, line 20.

Regarding **claim 13**, Higuchi discloses the method of claim 12 whereby said one or more neighboring pixels are comprised of pixels adjacent to the current pixel (refer to references cited in claim 4).

Regarding **claim 14**, Higuchi discloses method of claim 12 wherein the step of selecting an allowable exposure configurations further comprises comparing a modified input value for the

current pixel with allowable exposure configurations provided by the lookup table (refer to references cited in claim 10).

Regarding **claim 17**, Higuchi discloses the method of claim 12 wherein each allowable exposure configuration is comprised of a justification and an exposure level setting, said justification and exposure settings being consequent to capabilities of the output device and the sub-pixel addressability (refer to the references cited in claims 5 and 6).

Regarding **claim 18**, Higuchi discloses the method of claim 17 wherein the step of applying further comprises the steps of setting the justification and applying the exposure level (Refer to the "reference example" given in claim 12 in combination with the algorithm given in FIG. 34. TABLE 1, column 26 and the current pixel column indicated the setting of the justification (pulse position) and applying of the exposure level (pulse width Tx) to each upcoming current pixel.).

Regarding **claim 19**, Higuchi discloses the method of claim 17 whereby the justification setting of an allowable exposure configuration is either left or right (refer to references cited in claim 7).

Regarding **claim 20**, Higuchi discloses the method of claim 17 whereby the exposure level setting for at least one of the allowable exposure configurations corresponds to the application of no tone (refer to references cited in claim 9).

Regarding **claim 21**, Higuchi discloses a method of processing an image using error diffusion ("An image recording apparatus according to the present invention... and error diffusion means for diffusing an error between the pixel density value and a recording density value of the second recording control signal...", column 4, line 1.) to generate a halftone image for an output device having sub-pixel resolution ("...an image input section 1 (e.g., a scanner or an image memory) outputs an image signal of an half-tone image...", column 8, line 66 with regards to FIG. 34 of the fourth embodiment.), the method comprising:

a. Generating a lookup table (TABLE 1, column 26)

i. indexed by possible exposure characteristics of one or more neighboring pixel to a current pixel ("As shown in Table 1, the recording control signal of the current pixel X is determined by the recording control signals of pixels A and B adjacent to the current pixel X. Table 1 shows the recording control signal of the current pixel X for 16 combinations of the recording control signals (recording width information=pulse width and recording position information=pulse position) of the adjacent pixels A and B. The 16 recording patterns corresponding to the Table 1 are shown in FIGS. 39A to 39P.", column 25, line 49.)

ii. indicating allowable exposure configurations for the current pixel, each allowable exposure configuration comprised of a justification value and an exposure value (refer to references cited in claim 5);

b. As each pixel is processed as the current pixel using the error diffusion technique

i. Determining the exposure characteristics of one or more neighboring pixels which have been processed previous to the current pixel (refer to references cited in claims 1, 2, and 3);

ii. Calculating a modified input value for the current pixel (refer to references cited in claim 10);

iii. Referring to the lookup table based on the exposure characteristics of at least one pixel neighboring the current pixel to identify allowable exposure configurations for the current pixel (refer to references cited in claim 11);

iv. Selecting from the allowable exposure configurations by comparing the modified input value for the current pixel with an exposure level associated with each allowable exposure configuration (Refer to references cited in claim 8. Since there is only one allowable pulse width Tx for each new current pixel, that particular allowable pulse width Tx will be "selected" with a "self-comparison".); and

v. Applying the selected allowable exposure by setting the justification for the current pixel and applying the tone associated with the exposure level (refer to references cited in claim 8).

Regarding **claim 22**, Higuchi discloses the method of claim 32 wherein said neighboring pixels are adjacent to the current pixel (refer to references cited in claim 4).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. **Claims 15, 16,** and **23** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination between Higuchi et al. (US 5708514 A) "fourth embodiment" and Higuchi et al. (US 5708514 A) "first embodiment".

Regarding **claim 15**, while Higuchi "fourth embodiment" discloses the method of claim 14, Higuchi "fourth embodiment" does not disclose wherein the step of comparing a modified input value to select an allowable exposure configuration comprises identifying an exposure configuration having an exposure level closest to said modified input value.

Higuchi "first embodiment" discloses wherein the step of comparing a modified input value to select an allowable exposure configuration comprises identifying an exposure configuration having an exposure level closest to said modified input value ("In conversion of the first recording control signal into the second recording control signal, the value of a recording control signal which is closest to the value of the first recording control signal and can be stably recorded is selected. The reason why the value closest to the value of the first recording control signal is to obtain faithful tone reproduction by minimizing error between the input pixel density

value and the recording density value for the current pixel. When instability in a recording system changes, a recording control signal capable of usually obtaining stable pixel formation is selected in consideration of an allowable range of change.", column 12, line 14.).

It would have been obvious to one ordinary skilled in the art to disclose wherein the step of comparing a modified input value to select an allowable exposure configuration comprises identifying an exposure configuration having an exposure level closest to said modified input value as taught by Higuchi "first embodiment" "...to obtain faithful tone reproduction by minimizing error...", column 12, line 19.

Regarding **claim 16**, while Higuchi "fourth embodiment" discloses the method of claim 14, Higuchi "fourth embodiment" does not disclose further comprising the step of differencing the modified input value of the current pixel and applied exposure to generate a present error value to be propagated forward in the error diffusion processing.

Higuchi "first embodiment" discloses further comprising the step of differencing the modified input value of the current pixel and applied exposure to generate a present error value to be propagated forward in the error diffusion processing ("In this case, even if a value different from that of the original first recording control signal is selected, the second recording control signal serving as a final output is diffused to other pixels through the error diffusion section 8 using the difference between the recording density value and the input pixel density value as an error. For this reason, macroscopic density of the input pixel is maintained.", column 12, line 40.).

It would have been obvious to one ordinary skilled in the art to disclose further comprising the step of differencing the modified input value of the current pixel and applied exposure to generate a present error value to be propagated forward in the error diffusion processing as taught by Higuchi "first embodiment" so that "...macroscopic density of the input pixel is maintained.", column 12, line 45.

Regarding **claim 23**, while Higuchi "fourth embodiment" discloses the method of claim 21, Higuchi "fourth embodiment" does not disclose wherein the step of comparing a modified input value of the current pixel to select an allowable exposure configuration comprises identifying an exposure configuration having an exposure level closest to said modified input value of the current pixel.

Higuchi "first embodiment" discloses wherein the step of comparing a modified input value to select an allowable exposure configuration comprises identifying an exposure configuration having an exposure level closest to said modified input value of the current pixel ("In conversion of the first recording control signal into the second recording control signal, the value of a recording control signal which is closest to the value of the first recording control signal and can be stably recorded is selected. The reason why the value closest to the value of the first recording control signal is to obtain faithful tone reproduction by minimizing error between the input pixel density value and the recording density value for the current pixel. When instability in a recording system changes, a recording control signal capable of usually obtaining stable pixel formation is selected in consideration of an allowable range of change.", column 12, line 14.).

It would have been obvious to one ordinary skilled in the art to disclose wherein the step of comparing a modified input value to select an allowable exposure configuration comprises identifying an exposure configuration having an exposure level closest to said modified input value of the current pixel as taught by Higuchi "first embodiment" "...to obtain faithful tone reproduction by minimizing error...", column 12, line 19.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David P. Rashid whose telephone number is (571) 270-1578. The examiner can normally be reached on 7:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DPR

David P Rashid
Examiner
Art Unit 2112

BRIAN WERNER
SUPERVISORY PATENT EXAMINER